REMARKS

This paper is in response to the Office Action mailed on 09/21/2004. In the Office Action, claims 51-65 and 106-112 were rejected under 35 U.S.C. § 102(e). Reexamination and reconsideration in view of the amendments and the remarks made herein is respectfully requested.

Claims 51-65 and 106-112 were previously pending. Claims 1-50 and 66-105 were previously cancelled without prejudice.

Applicant has amended claims 51, 53, 55, 58-61, 63-64, 106-108, 110, and 112 by this response. Claims 52, 54, 56, 62, 109, and 111 have been cancelled without prejudice. Claims 113-118 have been added. Accordingly, claims 51, 53, 55, 57-61, 63-65, 106-108, 110, and 112-118 are now pending. Of the pending claims, claims 51, 58 and 114 are independent claims.

Applicant believes that no new matter has been added by this response.

I) Drawing Amendment

In Figure 16, Applicant has corrected the reference number "1602" to --1602C--.

Appendix I attached hereto is a clean drawing sheet of amended Figure 16. Appendix II attached hereto is an annotated amended drawing sheet of amended Figure 16 indicating this change in red.

The reference number 1602 was inconsistent with the specification.

Applicant believes that no new matter is added by this amendment to the drawing of Figure 16.

II) Specification

In the Cross-Reference to Related Applications section, on page 1, line 4, the paragraph therein has been amended in order to update the status of the parent patent application to which this divisional patent application claims the benefit thereof.

III) Claim Rejection - 35 USC § 102(e)

Claims 51-65 and 106-112 were rejected under 35 USC § 102(e) as being anticipated by U.S. Patent No. 6,005,694 issued to Shoa-Kai Liu ("Liu"). [Office Action, page 2]. Applicant respectfully traverses this rejection in its entirety.

The Office Action seems to suggest that 35 USC § 102(e) prior to the American Inventors Protection Act of 1999 ("AIPA") applies as the Liu reference is a U.S. patent resulting from an international application filed before Nov. 29, 2000. However, Liu is not a U.S. patent that resulted from the filing of an international patent application. Moreover this patent application was filed on 08/28/2003 and is subject to the AIPA. Thus, Applicant has interpreted this to be a typographical error and understands that 35 USC § 102(e) under the AIPA has been used in the examination of this patent application.

"To anticipate a claim, the reference must teach every element of the claim. 'A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.' *Verdegaal Bros. V. Union Oil co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). ... 'The identical invention must be shown in as complete detail as is contained in the claim.' *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)." [MPEP § 2131, 8th Edition, Rev. 2, May 2004, Pg. 2100-73].

Of these rejected claims, Applicant has cancelled claims 52, 54, 56, 62, 109, and 111 without prejudice and it is believed that this rejection is now moot with respect to these cancelled claims.

Additionally, Applicant has amended claims 51, 53, 55, 58-61, 63-64, 106-108, 110, and 112 to clarify Applicant's invention, unrelated to reasons of patentability.

The Office Action states that "Liu '694 teaches (Figs. 1-7B) a data signal network of increased reliability and method using same comprising: a plurality of optical data signals 102, 104 that can include at least first, second, third substantially similar optical signals which can be switched using an optical cross connect 206 via different optical paths so that in the event of signal failure (Note that failure could be a wide variety of causes including bit error) utilizing dedicated signals for detecting faults and switching optical signals provided by signal control means wherein the corrected signals are provided and routed via cross-connect means/optical router

means 120, 116 and detected/converted to electrical signals via conversion means 112 (Note that a plurality of signals can be corrected for errors and ultimately detected)" and that the "teachings of Liu 694' clearly, fully meets Applicant's claimed limitations." [Office Action, pages 2-3]. Applicant respectfully disagrees.

Generally, Liu discloses "***detection*** of an optical fault within the optical domain in a communication network". (emphasis added) [Liu, Col. 1, lines 10-12]. Liu's disclosure is not directed to redundant optical signal propagation of normal data traffic to provide increased reliability. Liu distinguishes normal data traffic from fault detection signals. In Liu, "distinguishable fault detection signals, distinguishable from normal data traffic, are transported over working fibers." [Liu, Col. 5, lines 60-62]. That is, Liu does not disclose taking a normal data traffic signal in the electrical domain and redundantly transporting it as a pair of optical signals over two differing optical paths in the optical domain.

In contrast, embodiments of Applicant's invention "generate a redundant optical path in [an] optical cross connect switch 1700", for example. [Applicant's Fig. 17, Applicant's specification, page 31, line 25]. "If one optical path fails in the optical switch fabric 1710, the redundant optical path in the optical switch fabric 1710 continues to handle the data carried by the optical signals." [Applicant's specification, page 31, lines 11-13]. This redundancy may sometimes be referred to as "bridging" where "at least two optical paths are

provided between port cards carrying the same optical signals." [Applicant's specification, page 31, lines 8-10]. Other examples of providing redundant optical paths in optical networking equipment are illustrated by Applicant's Figures 18, 19A-19G and described on pages 33-40 of Applicant's specification.

Embodiments of Applicant's invention don't simply provide a spare optical path, a redundant optical signal is also provided on the redundant optical path for a given data signal. For example as illustrated by Figure 17, "at least two optical signals on at least two split optical paths 1721A and 1722A" is provided for each data signal. [Applicant's specification, page 31, lines 32-33, and page 33, lines 14-16]. Embodiments of Applicant's invention can provide greater redundancy by using more than two optical signals and more than two optical paths for propagating each data signal through the optical network equipment.

Specifically with regards to amended independent claim 51, Applicant respectfully submits that Liu does not disclose "a first data signal embodied in a first optical signal on a first optical path in the optical network equipment" and "the first data signal simultaneously embodied in a second optical signal on a second optical path in the optical network equipment", "wherein the first optical path is different from the second optical path" as recited therein. [Claim 51 as amended, lines 4-12].

Specifically with regards to amended independent claim 58, Applicant respectfully submits that Liu does not disclose

"concurrently converting the electrical signal in the electrical domain into a first optical signal and a second optical signal in the optical domain" and "routing the first optical signal and the second optical signal respectively over two differing optical paths in the optical network equipment" as recited therein. [Claim 58 as amended, lines 6-12].

Thus for the foregoing reasons, Applicant respectfully submits that independent claims 51 and 58 are not anticipated by Liu.

Note Applicant has amended claim 106, previously an independent claim, into dependent form to depend from independent claim 51.

Claims 53, 55, 57, 106-108, 110, and 112 depend from independent claim 51. Claims 59-61, and 63-65 depend from independent claim 58. Applicant believes that it has placed independent claims 51 and 58 in condition for allowance such that these dependent claims depending respectively there-from with further limitations are also in condition for allowance.

As discussed previously, rejected claims 52, 54, 56, 62, 109, and 111 have been cancelled without prejudice so it is believe the rejection is now moot to these claims.

For the foregoing reasons, Applicant respectfully requests the withdrawal of the 35 U.S.C. § 102(e) rejection of claims 51-65 and 106-112.

IV) New Claims

Applicant has added new claims 113-118.

New claim 113 depends from independent claim 51.

Applicant believes that it has placed independent claim 51 in condition for allowance such that dependent claim 113 depending there-from with further limitations is also in condition for allowance.

New claim 114 is a new independent claim. New claims 115-118 depend directly or indirectly from independent claim 114.

With regard to independent claim 114, Applicant respectfully submits that Liu does not disclose "simultaneously embodying a plurality of data signals respectively into a first plurality of optical signals and a second plurality of optical signals" with "each data signal of the plurality of data signals being different"; "respectively propagating the first plurality of optical signals over a first plurality of optical paths in the optical network equipment"; and "respectively propagating the second plurality of optical signals over a second plurality of optical paths in the optical network equipment" where "the second plurality of optical paths differing from the first plurality of optical paths" as recited therein. [Claim 114, lines 4-15].

Thus, Applicant believes that independent claim 114 is not anticipated by Liu and is also in condition for allowance.

New claims 115-118 depend directly from independent claim 114.

Applicant believes that it has placed independent claim 114 in condition for allowance such that dependent claim 115-118

depending there-from with further limitations are also in condition for allowance.

Thus, Applicant respectfully submits that new claims 113-118 are also in condition for allowance over Liu.

V) Claim Amendments

As discussed previously, Applicant has amended claims 51, 53, 55, 58-61, 63-64, 106-108, 110, and 112 to clarify Applicant's invention, unrelated to reasons of patentability.

Independent claim 51 was amended to clarify the redundant optical signal on the redundant optical path by emphasizing that the first data signal is "simultaneously embodied in a second optical signal on a second optical path". Independent claim 51 was further amended to clarify the redundant optical signal on the redundant optical path by reciting its functionality in that "if the first optical path should fail then the second optical signal on the second optical path can provide continued first data signal propagation in the optical network equipment, or if the second optical path should fail then the first optical signal on the first optical path can provide continued first data signal propagation in the optical network equipment" some of which was previously found in dependent claim 52, now cancelled without prejudice. Independent claim 51 was further amended to delete the condition where the first optical signal and the second optical signal are substantially similar. Although they represent the same data signal, it may be the case

that the first optical signal and the second optical are somewhat different, such as having different power for example.

Dependent claim 53 was amended to clarify the additional redundancy by clarifying that the first data signal is simultaneously embodied in the third optical signal on the third optical path. Dependent claim 53 was further amended to delete the condition where the third optical signal is substantially similar to the first optical signal and the second optical signal. Dependent claim 53 was further amended to clarify the extra redundancy by reciting its functionality in that "if the first and second optical paths should fail then the third optical signal on the third optical path can provide continued first data signal propagation in the optical network equipment" from the limitations found in claim 54, now cancelled.

Dependent claim 55 was amended to recite that each data signal has redundancy by reciting a second data signal differing from the first data signal and the redundant optical signals and redundant optical paths for the second data signal. Dependent claim 55 was further amended to clarify the redundancy for each channel by reciting the added functionality of "if the fourth optical path should fail then the fifth optical signal on the fifth optical path can provide continued second data signal propagation in the optical network equipment, or if the fifth optical path should fail then the fourth optical signal on the fourth optical path can provide continued second data signal propagation in the optical network equipment".

Independent claim 58 was amended to clarify the redundant optical signal on the redundant optical path by "***concurrently*** converting the electrical signal in the electrical domain into a

first optical signal and a second optical signal in the optical domain". (emphasis added) Independent claim 58 was further amended to clarify the redundant optical signal on the redundant optical path by reciting "routing the first optical signal and the second optical signal respectively over two differing optical paths in the optical network equipment" some of which was previously found in dependent claim 60. Independent claim 58 was further amended to clarify the redundant optical signal on the redundant optical path by reciting "selecting the stronger signal of either the first processed optical signal or the second processed optical signal as the output optical signal". Independent claim 58 was further amended to delete the condition where the first and second optical signals are substantially similar. Although they represent the same electrical signal, it may be the case that the first optical signal and the second optical are somewhat different, such as having different power for example.

Dependent claim 59 was amended to add "simultaneously converted" to further clarify the redundancy. Dependent claim was further amended to recite the elements of an EO converter and splitter to provide the redundant optical signal.

Dependent claim 60 was amended to eliminate the limitation that was substantially added into the dependent claim 58.

Dependent claim 61 was amended to add the condition for the selection of the first processed optical signal over the second processed optical signal due to a weaker signal strength.

Dependent claim 63 was amended to change its dependency to be directly dependent from independent claim 58 and to add the condition for the selection of the first processed optical signal over the second processed optical signal due to a failure in an optical path.

Dependent claim 64 was amended to change its dependency to be dependent from claim 63 and to indicate the location of the failed component in the optical path over which the second optical signal is routed.

As discussed previously, claim 106 was amended into dependent form to depend from independent claim 51. Accordingly, similar limitations were deleted. Claim 106 was further amended to indicate the conditions for which the alarm signal would be generated and output from the optical network equipment.

Dependent claim 107 was amended to eliminate a redundant limitation that is now similarly found in independent claim 51.

Dependent claim 108 was amended to delete the condition where the third optical signal is substantially similar to the first optical signal and the second optical signal. Claim 108 was further amended to clarify the redundancy by reciting its functionality where "third optical signal on the third optical path can provide continued first data signal propagation in the optical network equipment" from claim 109, now cancelled. Claim 108 was further amended to recite the condition for the generation of the alarm signal from claim 109, now cancelled.

Dependent claim 110 was amended to delete the condition where the fourth optical signal is substantially similar to the first, second and third optical signals. Claim 110 was further amended to clarify the redundancy by reciting its functionality where "the fourth optical signal on the fourth optical path can provide continued first data signal propagation in the optical network equipment" "if the first, second and third optical paths should fail" from claim 111, now cancelled. Claim 110 was further amended to recite the condition for the generation of the alarm signal from claim 111, now cancelled.

Dependent claim 112 was amended to change its dependency to be direct from independent claim 51.

As these amendments were made to clarify the redundancy provided by embodiments of Applicant's invention, it is respectfully submitted that they have been made for reasons unrelated to patentability.

CONCLUSION

In view of the foregoing it is submitted that the claims are in condition for allowance. Reconsideration of the rejections and objections, if any, is respectfully requested. Allowance of the claims at an early date is respectfully solicited.

The Examiner is invited to contact Applicant's undersigned counsel by telephone at (714) 557-3800 should there be any questions or unresolved matters remaining.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made.

Please charge any shortage in fees in connection with the filing of this paper to Deposit Account 02-2666 and please credit any excess fees to such deposit account.

Respectfully submitted,

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Dated: January 21, 2005

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450 *on:* January 21, 2005.

Pat Sullivan 1/21/05

Pat Sullivan
Date

IN THE DRAWINGS

Applicant has amended the drawing of Figure 16 by changing the reference number "1602" therein to --1602C--.

An annotated version of amended Figure 16 is attached hereto as Appendix II to indicate this change in red.

Appendix I attached hereto is a clean version of amended Figure 16.

Appendix II

ANNOTATED AMENDED DRAWING SHEET
FIGURE 16

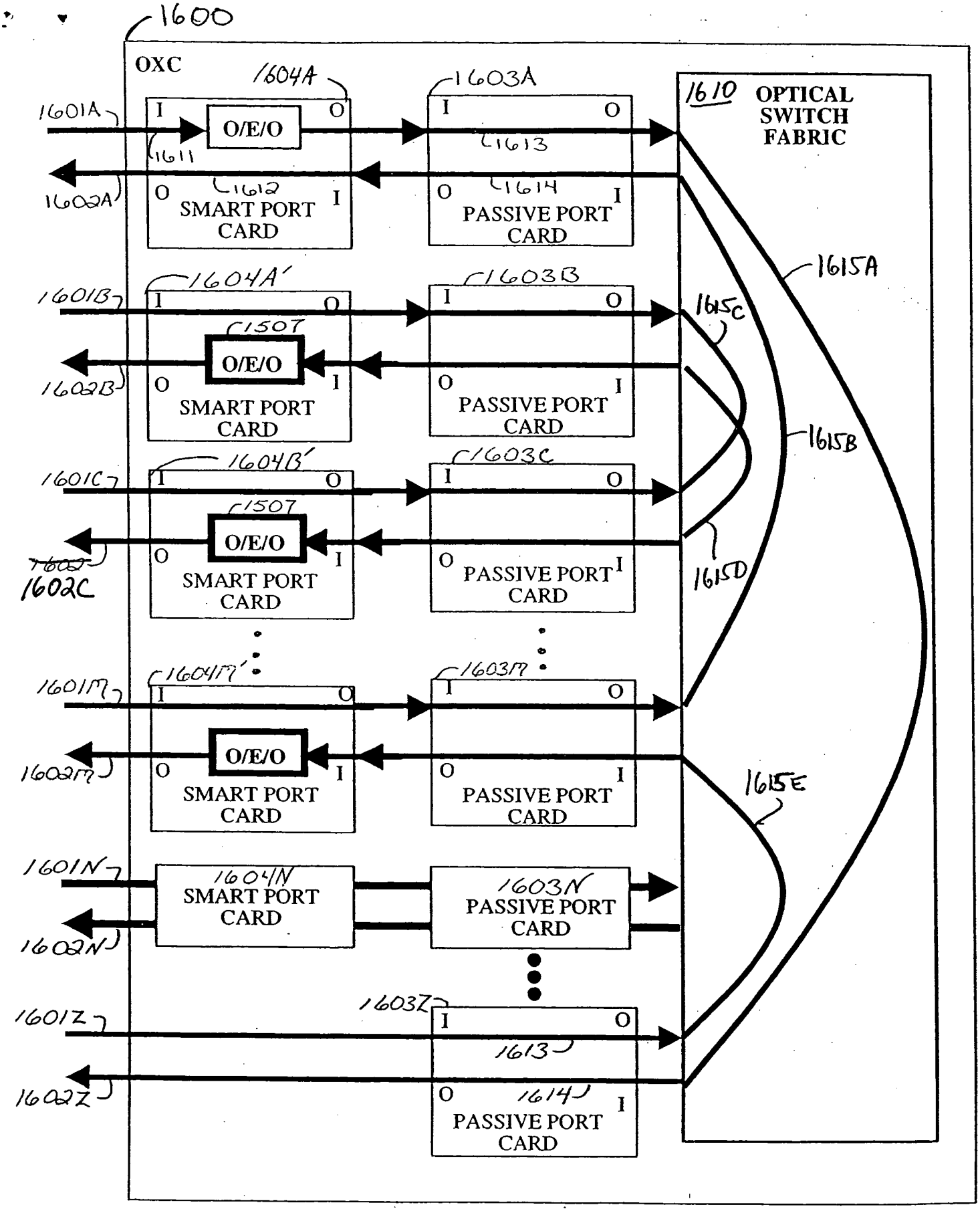
1600
OXC
1604A
1603A
1610
OPTICAL SWITCH FABRIC
1601A
I
O/E/O
O
1611
1613
1602A
O
1612
SMART PORT CARD
I
O
1614
PASSIVE PORT CARD
I
1615A
1604A'
1603B
1601B
1615C
1507
O/E/O
1602B
1615B
1604B'
1603C
1601C
1507
O/E/O
1602C
1615D
1604M'
1603M
1601M
O/E/O
1602M
1615E
1601N
1604N
SMART PORT CARD
1603N
PASSIVE PORT CARD
1602N
1603Z
1601Z
1613
1602Z
1614
PASSIVE PORT CARD

FIG. 16

Appendix I

CLEAN AMENDED DRAWING SHEET
FIGURE 16